WHAT IS CLAIMED IS:

1. A variable frequency oscillator, comprising:

a temperature compensation input node;

a frequency control input node;

a resonant circuit including:

a first tunable sub-circuit responsive to said temperature compensation input node for modifying the resonant frequency of said resonant circuit;

a second tunable sub-circuit responsive to said frequency control input node for modifying the resonant frequency of said resonant circuit;

wherein in normal use, said first tunable sub-circuit continuously responds to said frequency control input node to compensate for resonant drifts in said resonant circuit due to temperature variations while said resonant sub-circuit continuously responds to varying frequency modification signals at said frequency control input node.

2. The variable frequency oscillator of claim 1, wherein said first tunable sub-circuit is independent of said second tunable sub-circuit.

3. The variable frequency oscillator of claim 1, wherein said first tunable sub-circuit is connected in parallel to said second tunable sub-circuit.

4. The variable frequency oscillator of claim 1, wherein said a temperature compensation input node is effective for receiving a temperature compensation signal independent of said a frequency control input node receiving a frequency control signal.

5. The variable frequency oscillator of claim 4, further comprising a temperature compensation circuit for continuously producing said temperature compensation signal in accordance with temperature variations.

6. The variable frequency oscillator of claim 5, wherein said temperature compensation circuit includes:

a temperature sensing diode effective for producing a sensing voltage in response to temperature variations;

an analog-to-digital converter for converting said sensing voltage into a digital temperature value;

a memory storing a plurality of compensation voltage values having a one-to-one correspondence with a plurality of temperature value data, said memory being responsive to said analog-to-digital converter and effective for correlating said digital temperature value to one of said plurality of temperature value data and outputting its corresponding compensation voltage value;

a digital-to-analog converter responsive to said memory and effective for converting the compensation voltage value output by said memory into a corresponding analog voltage, said corresponding analog voltage being said temperature compensation signal.

7. The variable frequency oscillator of claim 5, wherein said frequency control signal is characterized by a predefined operating range, and said temperature compensation circuit is effective for maintaining the operating frequency of said variable frequency oscillator independent of temperature when said frequency control signal is at the midpoint of its predefined operating range.

8. The variable frequency oscillator of claim 1, wherein said first tunable sub-circuit includes a first variable impedance component responsive to said temperature compensation input node, and said second tunable sub-circuit includes a second variable impedance component responsive to said a frequency control input node.

9. The variable frequency oscillator of claim 8, wherein said first and second variable impedance components are first and second varactors, respectively.

10. The variable frequency oscillator of claim 1, wherein:

said first tunable sub-circuit includes first and second varactors with their respective cathodes coupled to said temperature compensation input node;

said second tunable sub-circuit includes third and fourth varactors with their respective cathodes coupled to said frequency control input node;

the anode of said first varactor is coupled to the anode of said third varactor; and

the anode of said second varactor is coupled to the anode of said fourth varactor.

11. The variable frequency oscillator of claim 1, further comprising an amplifying circuit forming a feedback path around said resonant circuit.

12. The variable frequency oscillator of claim 11, wherein said amplifying circuit includes an amplifier in series with a phase shift network.

13. The variable frequency oscillator of claim 11 wherein said amplifying circuit includes a first inverter.

14. The variable frequency oscillator of claim 13, wherein:

said amplifying circuit includes a second inverter, said first and second inverters forming a cross-coupled network defined by having the output of said first inverter coupled to the input of said second inverter and having the output of said second inverter coupled to the input of said first inverter; and

said cross-coupled network is connected in parallel to said resonant circuit.

15. The variable frequency oscillator of claim 1, wherein said resonant circuit further includes a crystal resonator;

said first tunable sub-circuit, second tunable sub-circuit, and crystal resonator being coupled in parallel.

16. The variable frequency oscillator of claim 1, wherein said resonant circuit further includes an inductive component;

said first tunable sub-circuit, second tunable sub-circuit, and inductive component being coupled in parallel.

17. The variable frequency oscillator of claim 16, wherein said inductive component is an inductor.

18. The variable frequency oscillator of claim 1, further comprising a temperature compensation circuit coupled to said temperature compensation input, and effective for continuously producing a temperature compensation signal in accordance with temperature variations, said temperature compensation circuit including:

a plurality of first modules each effective for producing a respective first signal directly proportional to temperature;

a plurality of second modules each effective for producing a respective second signal inversely proportional to temperature;

a first summing node for summing all of said first and second signals and producing a resultant summed signal.

19. The variable frequency oscillator of claim 18, wherein:

the strength of each first signal of said plurality of first modules is individually selectable; and

the strength of each second signal of said plurality of second modules is individually selectable.

20. The variable frequency oscillator of claim 18, wherein:

each of said plurality of first modules has an optionally assigned first temperature offset, wherein each of said plurality of first modules is precluded from outputting its respective first signal for temperatures below its respectively assigned first temperature offset.

21. The variable frequency oscillator of claim 18, wherein each of said plurality of second modules has an optionally assigned second temperature offset, wherein each of said plurality of second modules is precluded from outputting its respective second signal for temperatures below its respectively assigned second temperature offset.

22. The variable frequency oscillator of claim 18, wherein:

each of said plurality of first modules has an optionally assigned first temperature offset, wherein each of said plurality of first modules is precluded from outputting its respective first signal for temperatures below its respectively assigned first temperature offset; and

each of said plurality of second modules has an optionally assigned second temperature offset, wherein each of said plurality of second modules is precluded from outputting its respective second signal for temperatures below its respectively assigned second temperature offset.

23. The variable frequency oscillator of claim 18, wherein each of said plurality of first modules and each of said plurality of second modules includes a first CTAT signal source.

24. The variable frequency oscillator of claim 23, wherein at least one of said plurality of first modules further includes:

a CTAT signal source;

a PTAT signal source;

a second summing node for creating a difference signal based on the difference in signal magnitude of said CTAT signal source and said PTAT signal source; and

a first dependent signal generator for producing an intermediate signal dependent on said difference signal.

25. The variable frequency oscillator of claim 24, wherein said dependent signal generator produces said intermediate signal only if said difference signal is above a predetermined threshold value.

26. The variable frequency oscillator of claim 24, wherein said difference signal is a measure of a temperature offset, wherein said at least one of said plurality of first modules produces substantially no signal for temperatures below said temperature offset.

27. The variable frequency oscillator of claim 24, wherein:

for temperatures lower than a predefined transition temperature the magnitude of said CTAT signal source is greater than said PTAT signal source; and

for temperatures higher than said predefined transition temperature the magnitude of said PTAT signal source is greater than said CTAT signal source.

28. An electronic device including the temperature compensation circuit of claim 1.

29. A variable frequency oscillator, comprising:

a first inverter and a second inverter forming a cross-coupled network defined by having the output of said first inverter coupled to the input of said second inverter and having the output of said second inverter coupled to the input of said first inverter;

a resonant circuit including:

a resonator;

a first tunable sub-circuit responsive to a temperature compensation input node for modifying the resonant frequency of said resonant circuit in accordance with temperature variations;

a second tunable sub-circuit responsive to a frequency control input node for modifying the resonant frequency of said resonant circuit;

wherein said resonator, first tunable sub-circuit, and said second tunable sub-circuit are connected in parallel; and

wherein said resonant circuit is coupled in parallel to said cross-coupled network.

30. The variable frequency oscillator of claim 29, wherein said resonator is an inductor.

31. The variable frequency oscillator of claim 29, wherein said resonator is a tank circuit.

32. The variable frequency oscillator of claim 29, wherein said resonator is crystal resonator.

33. The variable frequency oscillator of claim 29, wherein said first tunable sub-circuit includes a first variable impedance component responsive to said temperature compensation input node, and said second tunable sub-circuit includes a second variable impedance component responsive to said a frequency control input node.

34. The variable frequency oscillator of claim 33, wherein said first and second variable impedance components are first and second varactors, respectively.

35. The variable frequency oscillator of claim 29, wherein:

said first tunable sub-circuit includes first and second varactors with their respective cathodes coupled to said temperature compensation input node;

said second tunable sub-circuit includes third and fourth varactors with their respective cathodes coupled to said frequency control input node;

the anode of said first varactor is coupled to the anode of said third varactor; and

the anode of said second varactor is coupled to the anode of said fourth varactor.

36. The variable frequency oscillator of claim 29, further comprising a current source, wherein the switching current through said first and second inverters is limited by said current source.

37. The variable frequency oscillator of claim 29, further comprising:

a first power rail;

a second power rail; and

a current source having an output node coupled to said second power rail;

wherein:

said first inverter includes a first PMOS transistor and a first NMOS transistor with their respective drain electrodes coupled together, and said second inverter includes a second PMOS transistor and a second NMOS transistor with their respective drain electrodes coupled together, and wherein the source electrodes of said first and second PMOS transistors are coupled to said first power rail and the source electrodes of said first and second NMOS transistors are coupled to an input node of said current source;

said first tunable sub-circuit is coupled between the drain electrodes of said first and second PMOS transistors; and

said second tunable sub-circuit is coupled between the drain electrodes of said first and second NMOS transistors.

38. The variable frequency oscillator of claim 37, wherein said first tunable sub-circuit includes a first variable impedance component responsive to said temperature compensation input node, and said second tunable sub-circuit includes a second variable impedance component responsive to said a frequency control input node.

39. The variable frequency oscillator of claim 38, wherein said first and second variable impedance components are first and second varactors, respectively.

40. The variable frequency oscillator of claim 37, wherein:

said first tunable sub-circuit includes first and second varactors with their respective cathodes coupled to said temperature compensation input node, the anode of said first varactor is coupled to the drain electrode of said first PMOS transistor, and the anode of said second varactor is coupled to the drain electrode of said second PMOS transistor;

said second tunable sub-circuit includes third and fourth varactors with their respective cathodes coupled to said frequency control input node, the anode of said third varactor is coupled to the drain electrode of said first NMOS transistor, and the anode of said third varactor is coupled to the drain electrode of said second NMOS transistor.

41. The variable frequency oscillator of claim 40, wherein said resonator includes an inductive component.

42. The variable frequency oscillator of claim 40, wherein said resonator is an inductor.

43. The variable frequency oscillator of claim 40, wherein:

the control gates of said first PMOS and NMOS transistors are coupled together and constitute a true output of said frequency oscillator; and

the control gates of said second PMOS and NMOS transistors are coupled together and constitute a complementary output of said frequency oscillator.

44. The variable frequency oscillator of claim 29, wherein said temperature compensation input node is effective for receiving a temperature compensation signal independent of said a frequency control input node receiving a frequency control signal.

45. The variable frequency oscillator of claim 44, further comprising a temperature compensation circuit for continuously producing said temperature compensation signal in accordance with temperature variations.

46. The variable frequency oscillator of claim 45, wherein said temperature compensation circuit includes:

a temperature sensing diode effective for producing a sensing voltage in response to temperature variations;

an analog-to-digital converter for converting said sensing voltage into a digital temperature value;

a memory storing a plurality of compensation voltage values having a one-to-one correspondence with a plurality of temperature value data, said memory being responsive to said analog-to-digital converter and effective for correlating said digital temperature value to one of said plurality of temperature value data and outputting its corresponding compensation voltage value;

a digital-to-analog converter responsive to said memory and effective for converting the compensation voltage value output by said memory into a corresponding analog voltage, said corresponding analog voltage being said temperature compensation signal.

47. The variable frequency oscillator of claim 45, wherein said temperature compensation circuit includes:

a plurality of first modules each effective for producing a respective first signal directly proportional to temperature;

a plurality of second modules each effective for producing a respective second signal inversely proportional to temperature;

a first summing node for summing all of said first and second signals and producing a resultant summed signal.

48. The variable frequency oscillator of claim 47, wherein:

the strength of each first signal of said plurality of first modules is individually selectable; and

the strength of each second signal of said plurality of second modules is individually selectable.

49. The variable frequency oscillator of claim 47, wherein:

each of said plurality of first modules has an optionally assigned first temperature offset, wherein each of said plurality of first modules is precluded from outputting its respective first signal for temperatures below its respectively assigned first temperature offset.

50. The variable frequency oscillator of claim 47, wherein each of said plurality of second modules has an optionally assigned second temperature offset, wherein each of said plurality of second modules is precluded from outputting its respective second signal for temperatures below its respectively assigned second temperature offset.

51. The variable frequency oscillator of claim 47, wherein:

each of said plurality of first modules has an optionally assigned first temperature offset, wherein each of said plurality of first modules is precluded from outputting its respective first signal for temperatures below its respectively assigned first temperature offset; and

each of said plurality of second modules has an optionally assigned second temperature offset, wherein each of said plurality of second modules is precluded from outputting its respective second signal for temperatures below its respectively assigned second temperature offset.

52. The variable frequency oscillator of claim 47, wherein each of said plurality of first modules and each of said plurality of second modules includes a first CTAT signal source.

53. The variable frequency oscillator of claim 52, wherein at least one of said plurality of first modules further includes:

a CTAT signal source;

a PTAT signal source;

a second summing node for creating a difference signal based on the difference in signal magnitude of said CTAT signal source and said PTAT signal source; and

a first dependent signal generator for producing an intermediate signal dependent on said difference signal.

54. The variable frequency oscillator of claim 53, wherein said dependent signal generator produces said intermediate signal only if said difference signal is above a predetermined threshold value.

55. The variable frequency oscillator of claim 53, wherein said difference signal is a measure of a temperature offset, wherein said at least one of said plurality of first modules produces substantially no signal for temperatures below said temperature offset.

56. The variable frequency oscillator of claim 53, wherein:

for temperatures lower than a predefined transition temperature the magnitude of said CTAT signal source is greater than said PTAT signal source; and

for temperatures higher than said predefined transition temperature the magnitude of said PTAT signal source is greater than said CTAT signal source.

57. An electronic device including the temperature compensation circuit of claim 29.

58. A variable frequency oscillator, comprising:

an gain stage;

a phase shift stage; and

a resonant circuit, said resonant circuit including:

a resonator module; and

a plurality of tunable sub-circuits, each being coupled in parallel to said resonator module, and being responsive to a corresponding frequency control input.

59. The variable frequency oscillator of claim 58, wherein each of said plurality of tunable sub-circuits is independent of each other.

60. The variable frequency oscillator of claim 58, wherein said resonant circuit, gain stage, and phase shift stage form a closed loop.

61. The variable frequency oscillator of claim 58, wherein each of said plurality of tunable sub-circuits includes a variable impedance component responsive to its corresponding frequency control input.

62. The variable frequency oscillator of claim 61, wherein said variable impedance component is a varactor.

63. The variable frequency oscillator of claim 58, wherein:

each of said plurality of tunable sub-circuits includes first and second varactors with their respective cathodes coupled to their corresponding frequency control input.

64. The variable frequency oscillator of claim 58 wherein said gain stage includes a first inverter.

65. The variable frequency oscillator of claim 64, wherein:

said gain stage further includes a second inverter, said first and second inverters forming a cross-coupled network defined by having the output of said first inverter coupled to the input of said second inverter and having the output of said second inverter coupled to the input of said first inverter; and

said cross-coupled network is connected in parallel to said resonant circuit.

66. The variable frequency oscillator of claim 58, wherein said resonator module is a crystal resonator.

67. The variable frequency oscillator of claim 58, wherein said resonator module is an inductive component.

68. The variable frequency oscillator of claim 67, wherein said inductive component is an inductor.

69. The variable frequency oscillator of claim 58, wherein at least one of said plurality of tunable sub-circuits is response to a temperature compensation input effective for receiving a temperature compensation signal independent of the remaining of said plurality of tunable circuits.

70. The variable frequency oscillator of claim 69, further comprising a temperature compensation circuit for continuously producing said temperature compensation signal in accordance with temperature variations.

71. The variable frequency oscillator of claim 70, wherein said temperature compensation circuit includes:

a temperature sensing diode effective for producing a sensing voltage in response to temperature variations;

an analog-to-digital converter for converting said sensing voltage into a digital temperature value;

a memory storing a plurality of compensation voltage values having a one-to-one correspondence with a plurality of temperature value data, said memory being responsive to said analog-to-digital converter and effective for correlating said digital temperature value to one of said plurality of temperature value data and outputting its corresponding compensation voltage value;

a digital-to-analog converter responsive to said memory and effective for converting the compensation voltage value output by said memory into a corresponding analog voltage, said corresponding analog voltage being said temperature compensation signal.

72. The variable frequency oscillator of claim 70, wherein said temperature compensation circuit includes:

a plurality of first modules each effective for producing a respective first signal directly proportional to temperature;

a plurality of second modules each effective for producing a respective second signal inversely proportional to temperature;

a first summing node for summing all of said first and second signals and producing a resultant summed signal.

73. The variable frequency oscillator of claim 72, wherein:

the strength of each first signal of said plurality of first modules is individually selectable; and

the strength of each second signal of said plurality of second modules is individually selectable.

74. The variable frequency oscillator of claim 72, wherein:

each of said plurality of first modules has an optionally assigned first temperature offset, wherein each of said plurality of first modules is precluded from outputting its respective first signal for temperatures below its respectively assigned first temperature offset.

75. The variable frequency oscillator of claim 72, wherein each of said plurality of second modules has an optionally assigned second temperature offset, wherein each of said plurality of second modules is precluded from outputting its respective second signal for temperatures below its respectively assigned second temperature offset.

76. The variable frequency oscillator of claim 72, wherein:

each of said plurality of first modules has an optionally assigned first temperature offset, wherein each of said plurality of first modules is precluded from outputting its respective first signal for temperatures below its respectively assigned first temperature offset; and

each of said plurality of second modules has an optionally assigned second temperature offset, wherein each of said plurality of second modules is precluded from outputting its respective second signal for temperatures below its respectively assigned second temperature offset.

77. The variable frequency oscillator of claim 72, wherein each of said plurality of first modules and each of said plurality of second modules includes a first CTAT signal source.

78. The variable frequency oscillator of claim 77, wherein at least one of said plurality of first modules further includes:

a CTAT signal source;

a PTAT signal source;

a second summing node for creating a difference signal based on the difference in signal magnitude of said CTAT signal source and said PTAT signal source; and

a first dependent signal generator for producing an intermediate signal dependent on said difference signal.

79. The variable frequency oscillator of claim 78, wherein said dependent signal generator produces said intermediate signal only if said difference signal is above a predetermined threshold value.

80. The variable frequency oscillator of claim 78, wherein said difference signal is a measure of a temperature offset, wherein said at least one of said plurality of first modules produces substantially no signal for temperatures below said temperature offset.

81. The variable frequency oscillator of claim 78, wherein:

for temperatures lower than a predefined transition temperature the magnitude of said CTAT signal source is greater than said PTAT signal source; and

for temperatures higher than said predefined transition temperature the magnitude of said PTAT signal source is greater than said CTAT signal source.

82. An electronic device including the temperature compensation circuit of claim 58.